CLAIM LISTING/ AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application:

1. (Currently Amended) A lab-scale reactor unit for conducting high temperature catalytic reactions to produce hydrogen cyanide, said lab-scale reactor unit being sized and shaped for use within a laboratory setting and comprising:

(a) a body of thermal insulating material,

(b) a reaction chamber formed within said body of thermal insulating material,

(c) a pressure containment vessel disposed about said body of thermal insulating material, said pressure containment vessel having an inlet communicating with said reaction chamber, said pressure containment vessel having an outlet communicating with said reaction chamber, and

(d) a quench cooler operatively connected to said outlet of said pressure containment vessel.

2. (Original) The lab-scale reactor unit according to claim 1, wherein said reaction chamber is formed by at least one hollow body of a heat-resistant material embedded in said body of thermal insulating material.

3. (Original) The lab-scale reactor unit according to claim 1, wherein said reaction chamber is formed as a void in said body of thermal insulating material.

4. (Withdrawn) The lab-scale reactor unit according to claim 1, wherein a flow path from said inlet to said reaction chamber undergoes a conical expansion.

5. (Withdrawn) The lab scale reactor unit according to claim 1, wherein at least one radiation heat shield is disposed within said reaction chamber.

6. (Currently Amended) A lab-scale reactor system comprising:

(a) a body of thermal insulating material,

(b) a reaction chamber formed within said body of thermal insulating material,

(c) a pressure containment vessel disposed about said body of thermal insulating material, said pressure containment vessel having an inlet communicating with said reaction chamber, said pressure containment vessel having an outlet communicating with said reaction chamber,

(d) a quench cooler having an inlet and an outlet, said inlet of said quench cooler connected to said outlet of said pressure containment vessel and said quench cooler being sized and shaped to rapidly cool an effluent stream comprising at least hydrogen cyanide,

(e) an inlet line connected to said inlet of said pressure containment vessel,

(f) an outlet line connected to said outlet of said quench cooler,

(g) a pressure control valve disposed in said outlet line,

(h) a first pressure relief device connected to said outlet line, intermediate said pressure control valve and said outlet of said quench cooler, or said inlet line proximate said inlet of said pressure containment vessel, ~~and~~

(i) optionally, a second pressure relief device connected to said inlet line, proximate said inlet of said pressure containment vessel, or said outlet line, intermediate said pressure control valve and said outlet of said quench cooler, with the proviso that, when two pressure relief devices are present, one pressure relief device is connected to said outlet line and one pressure relief device is connected to said inlet line, and

(j) a flare having an inlet in fluid communication with at least one of said outlet lines for destruction of product gases.

7. (Withdrawn) The lab-scale reactor system according to claim 6, further comprising:

(j) an analysis means for determining the chemical composition of a stream fed thereto,

(k) a first sample line connecting said inlet line, at a point upstream of said second pressure relief device, and said analysis means, and

(l) a second sample line connecting said outlet line, at a point intermediate said first pressure relief device and said pressure control valve, and said analysis means.

8. (Withdrawn) The lab-scale reactor system according to claim 7, further comprising:

(m) at least one reactant feed line connecting a pressurized source of a reactant and said inlet line, each reactant feed line containing a flow controller, and

(n) an inert gas purge line connecting each reactant feed line, at a point intermediate said flow controller and said inlet line, with a pressurized source of an inert purge gas, said pressure of said pressurized source of inert purge gas being greater than said pressure of said pressurized source of a reactant, said inert gas purge line containing a valve.

9. (Withdrawn) The lab-scale reactor system according to claim 8, further comprising:

(o) a heater in each of said feed lines, said heater disposed intermediate said inert gas purge line and said inlet line.

10. (Withdrawn) The lab-scale reactor system according to claim 8, further comprising:

(p) a bypass line valve disposed in said inlet line, intermediate said second pressure relief device and said first sample line,

(q) a bypass line connecting said bypass valve and said outlet line, at a point downstream of said pressure control valve, and

(r) a sweep gas line connecting a pressurized source of sweep gas and said bypass line at a point proximate said bypass valve.

11. (Withdrawn) The lab-scale reactor system according to claim 10, further comprising:

(s) a disposal means, connected to said outlet line at a point downstream of said bypass line, for disposing of reactor effluent.

12. (Original) The lab-scale reactor system according to claim 6, wherein said reaction chamber is formed by at least one hollow body of a heat-resistant material embedded in said body of thermal insulating material.

13. (Original) The lab-scale reactor system according to claim 6, wherein said reaction chamber is formed as a void in said body of thermal insulating material.

14. (Withdrawn) The lab-scale reactor system according to claim 6, wherein a flow path from said inlet to said reaction chamber undergoes a conical expansion.

15. (Withdrawn) The lab scale reactor unit according to claim 6, wherein at least one radiation heat shield is disposed within said reaction chamber.